

Background: San Francisco (SF) Bay Delta

- Watershed = 75,000 square miles & drains 40% of state
- Supports the CA economy Water for 27 million people & 4 million acres of farmland
- Largest estuary on west coast of N. and S. America
- Habitat for 800 species
- Commercial & recreational fisheries, recreation & tourism



Background: SF Bay Delta Challenges

Ecosystem Collapse

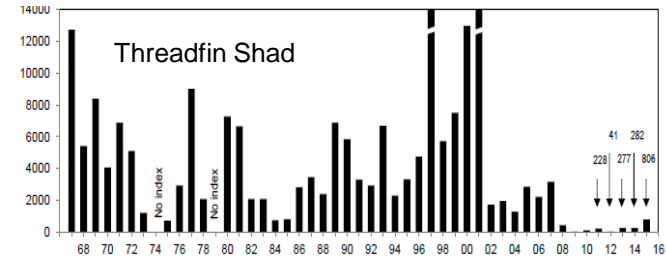
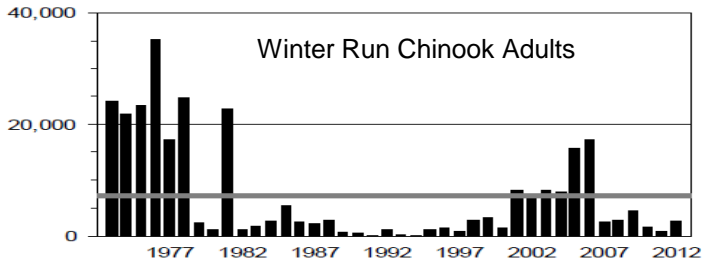
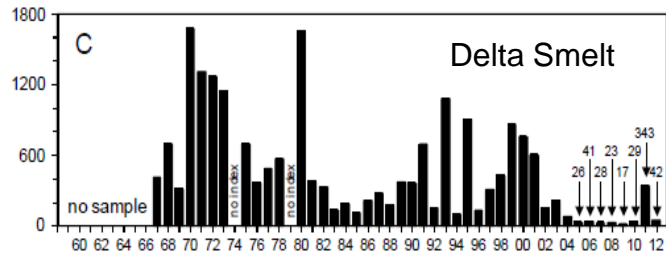
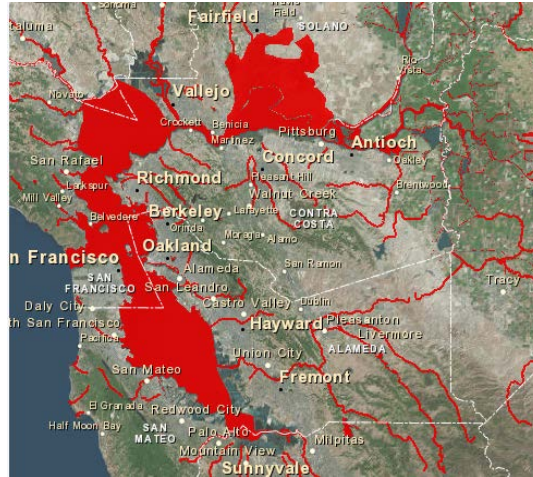


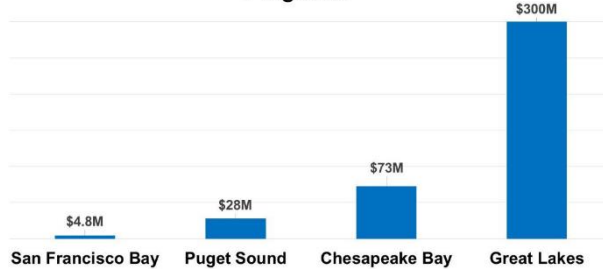
Figure 4. FMWT Threadfin Shad annual abundance indices, 1967-2015.



Water Quality



2015 EPA Funding for Major Geographic Programs



Water Supply

Delta Smelt, Icon of California Water Wars, Is Almost Extinct

Tiny fish's survival hangs in the balance as severe drought and decades of water pumping drain its habitat.



Sea Level Rise



Drought-ravaged California orders record water cuts on farmers

- Order affects Sacramento, San Joaquin and delta watersheds
- Thousands of senior water rights holders will be affected



Earthquake could threaten California's water supply

Earth Day Special Feature 2011: Two-thirds of Californians get their water from the Delta. A look at Sherman Island and the aging levees in the Delta.



Water Quality Standards Updates

Description

- California will update water quality standards in the Bay-Delta that are protective of fish and wildlife beneficial
- Existing standards may not be appropriate
- Phase I – South Delta & San Joaquin River and tributaries
- Phase II – Sacramento-San Joaquin Delta

EPA Role

- Approve or disapprove any new or modified Water Quality Standards (WQS)

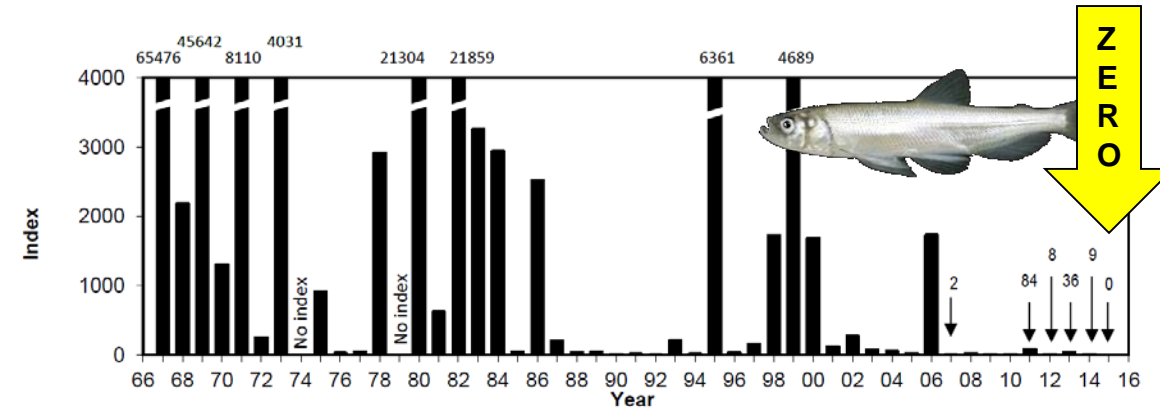


Figure 3. FMWT Longfin Smelt September-October abundance indices, 1967-2015.

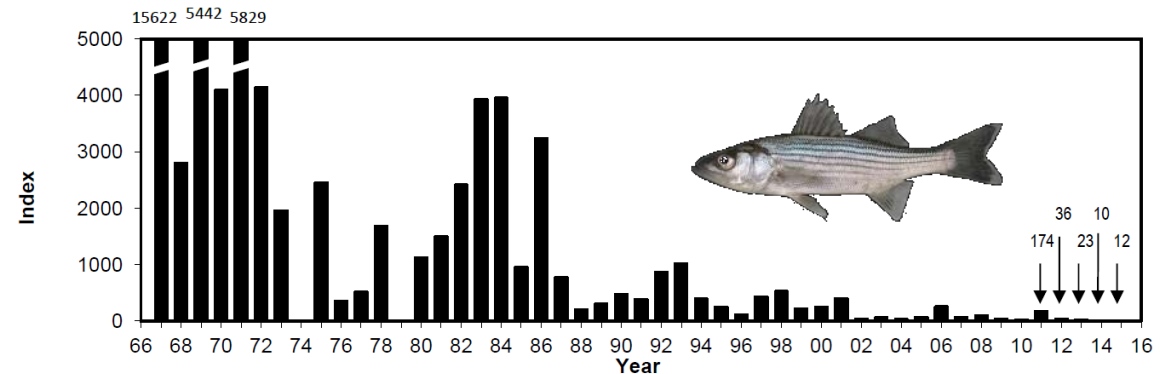


Figure 2. FMWT Age-0 Striped Bass September-October abundance indices, 1967-2015.



Delta Inflow

Sacramento River

~80% Inflow; good quality

East Side Rivers

~5% Inflow; good quality

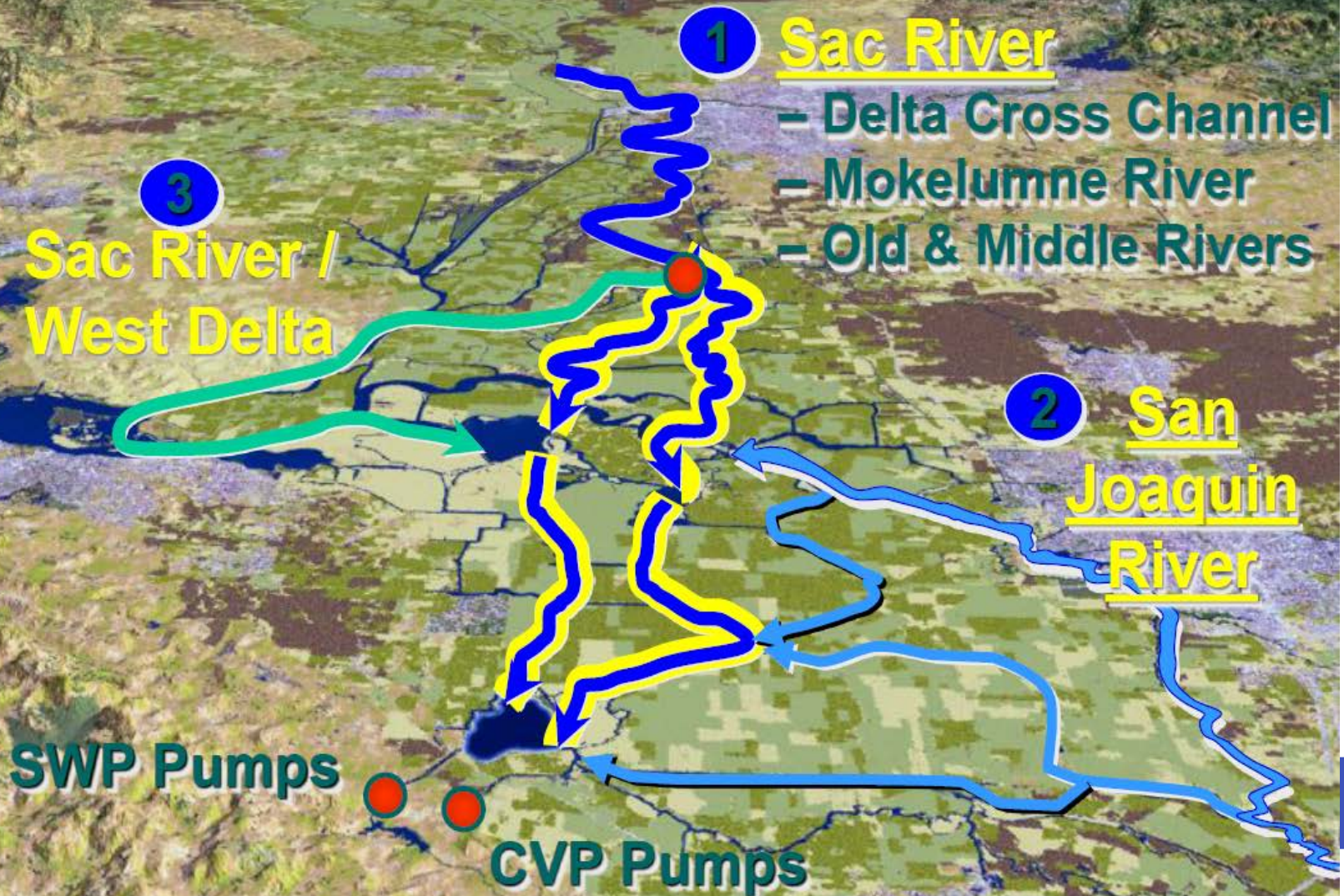
Ocean/Tidal
High salinity

San Joaquin River

~15% Inflow; poorer quality



How Water Gets to State and Federal Pumps



Bay-Delta Standards

DRAFT

Contained In D-1641

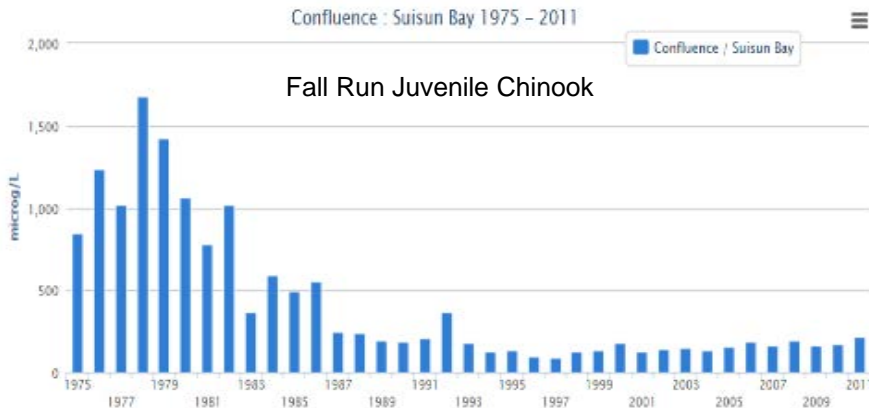
CRITERIA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
FLOW/OPERATIONAL												
• Fish and Wildlife												
SWP/CVP Export Limits				1,500cfs [1]								
Export/Inflow Ratio [2]	65%	35% of Delta Inflow [3]					65% of Delta Inflow					
Minimum Delta Outflow	[4]						3,000 - 8,000 cfs [4]					
Habitat Protection Outflow		7,100 - 29,200 cfs [5]										
Salinity Starting Condition [6]		[8]										
River Flows:												
@ Rio Vista							3,000 - 4,500 cfs [7]					
@ Vernalis - Base		710 - 3,420 cfs [8]				[8]						
- Pulse				[9]					+28TAF			
Delta Cross Channel Gates	[10]	Closed				[11]	Conditional [10]					
WATER QUALITY STANDARDS												
• Municipal and Industrial												
All Export Locations	≤ 250 mg/l Cl											
Contra Costa Canal	150 mg/l Cl for the required number of days [12]											
• Agriculture												
Western/Interior Delta				Max 14-day average EC mmhos/cm [13]								
Southern Delta [14]	1.0 mS			30 day running avg EC 0.7 mS					1.0 mS			
• Fish and Wildlife												
San Joaquin River Salinity [15]				14-day avg; 0.44 EC								
Suisun Marsh Salinity [16]	12.5 EC	8.0 EC		11.0 EC					19.0 EC	[17]	15.5 EC	



Phase I: Water Quality Standards Updates

Lower San Joaquin River

- Draft objectives (2012)
- 1000 cfs baseflow at Vernalis
- 35% of flow in tributaries Feb to June
- Narrative aquatic life objective
- Relaxed south Delta salinity



Issues & Concerns

- Vague & not enforceable
- Need year-round protection
- Insufficient to protect essential ecological functions
- Not an improvement in flow conditions
- Dramatically lower than standards elsewhere
- May not support fall-run Chinook salmon or other migratory fish



Phase I: Water Quality Standards Updates

EPA Actions

- Scoping comments in March 2009
- Comments on draft objectives in March 2013

Next Steps

- New draft objectives expected January 2016
- EPA will review and comment in early 2016



Next Steps continued

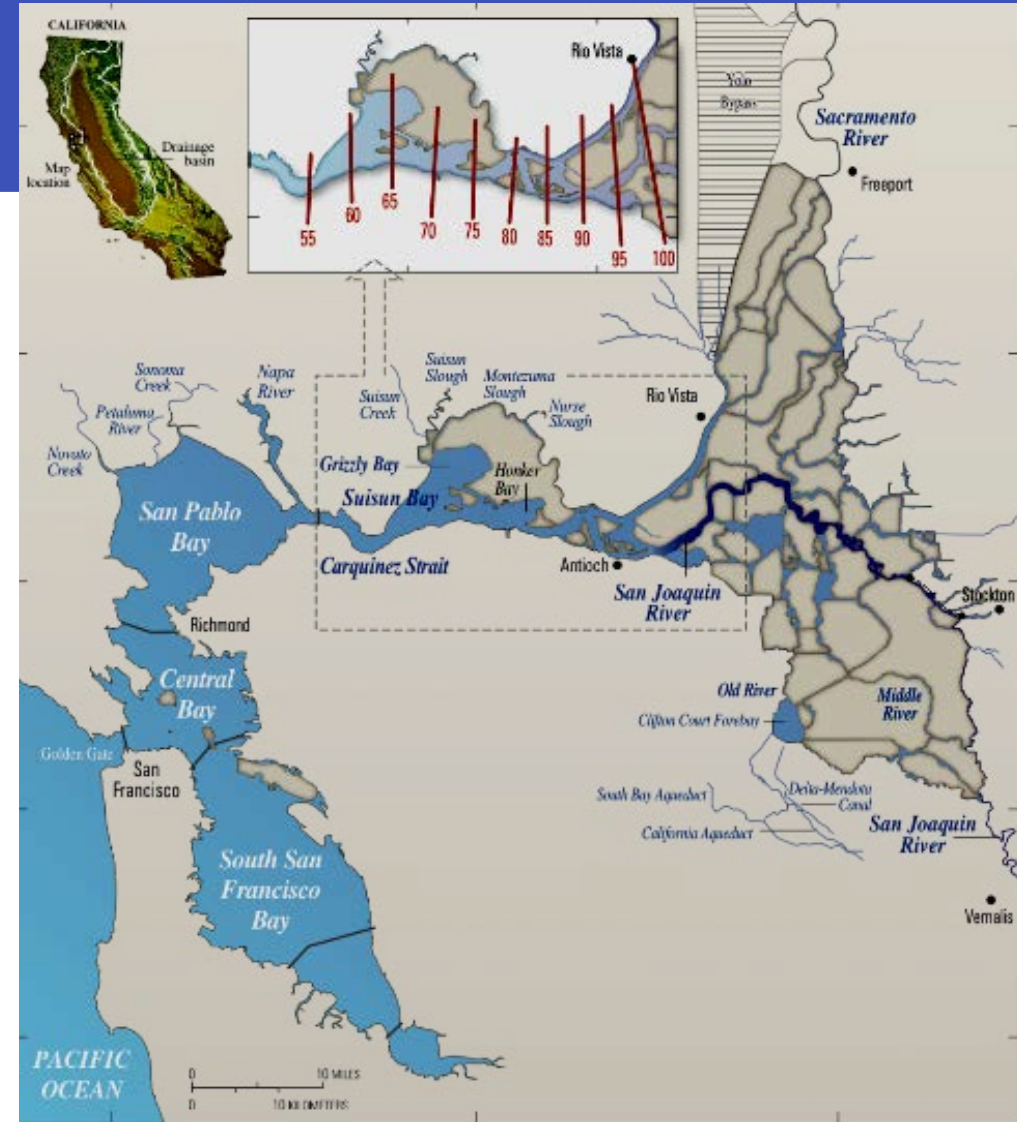
- Water Board will adopt by the end of 2016
- EPA to approve or disapprove near end of 2016/beginning of 2017
- Potential for EPA disapproval of adopted water quality standards
- EPA would have to promulgate protective standards



Phase II WQS Updates

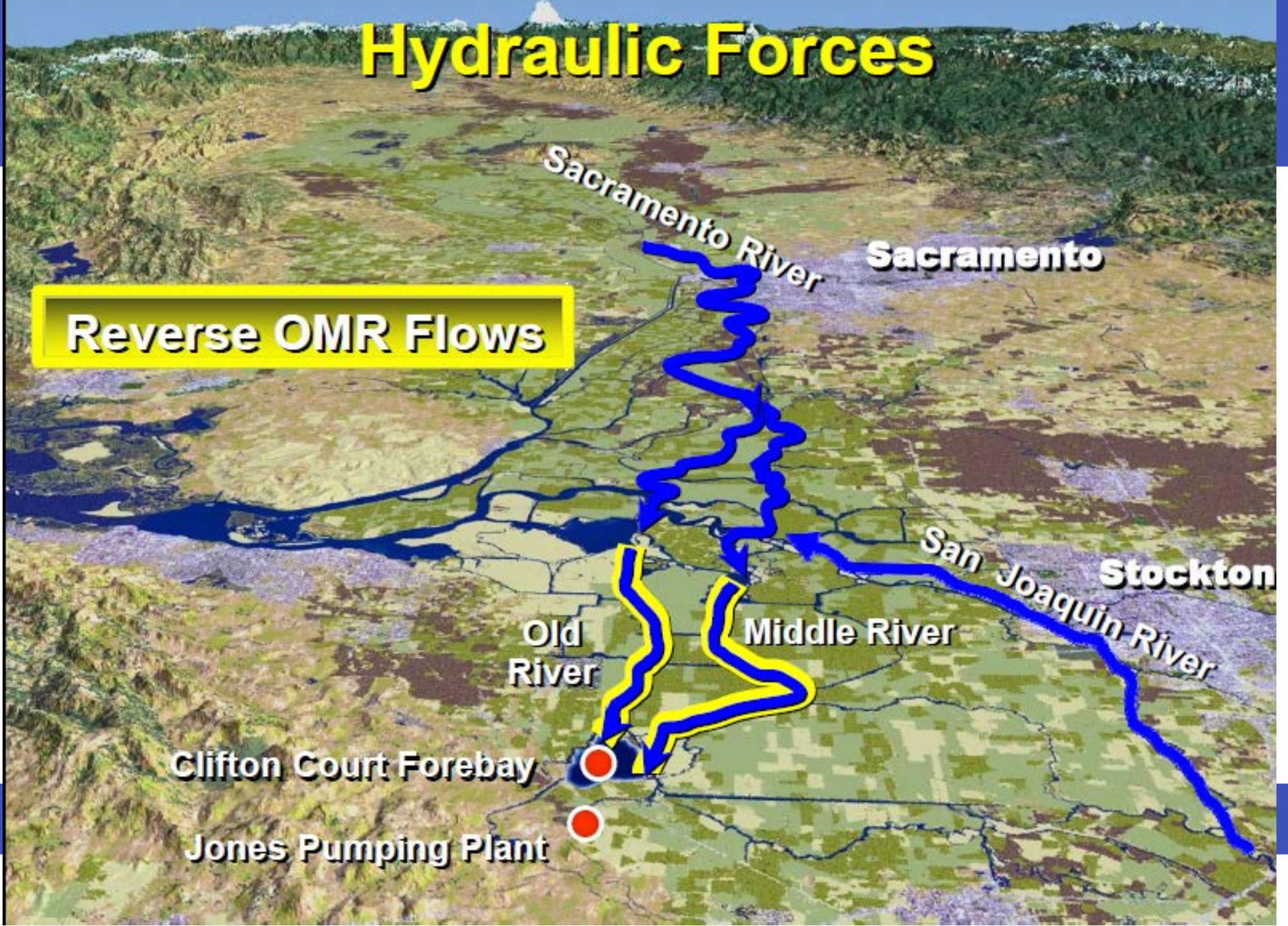
Phase II Sacramento-San Joaquin Delta

- Modify or adopt new objectives
 - Delta outflow also called “X2”
 - Suisun Marsh salinity
 - Reverse flows
 - Floodplain flows
- Science supports substantial increase in outflow to protect aquatic life
- Scientific foundation for new objectives released early in 2016



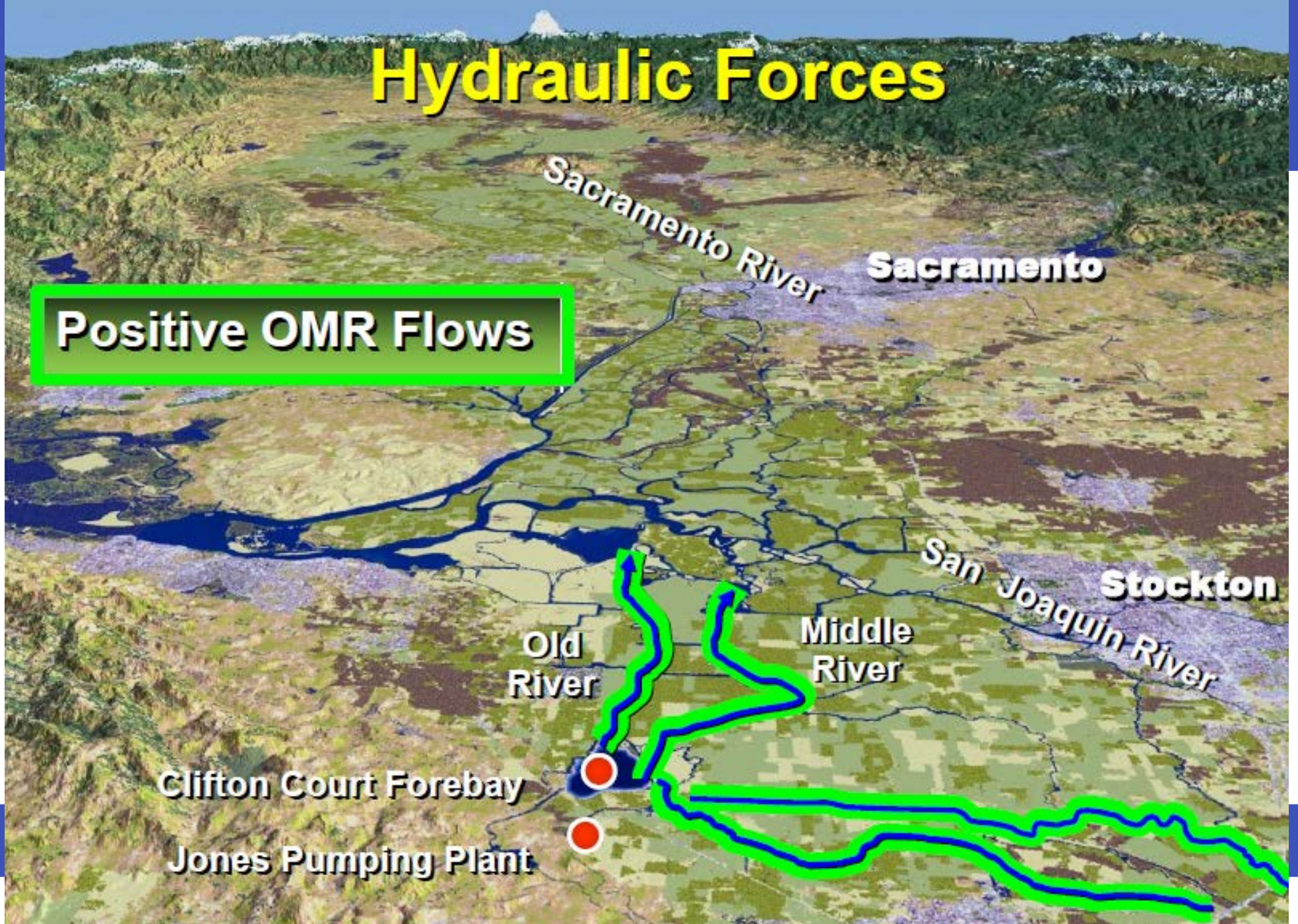
Hydraulic Forces

Reverse OMR Flows



Hydraulic Forces

Positive OMR Flows



Phase II: Water Quality Standards Updates

Issues & Concerns

- Need more freshwater flow through the Delta
- Overdue by at least 3 years
- Measurable and enforceable standards
- Monitoring and science for assessment and adaptive management

EPA Actions

- Comment letters
- April 2012
- August 2012
- November 2012

Next Steps

- Draft objectives released early 2016
- EPA will provide written comments and present at Board meetings
- Anticipate need of technical support for review of proposed objectives

